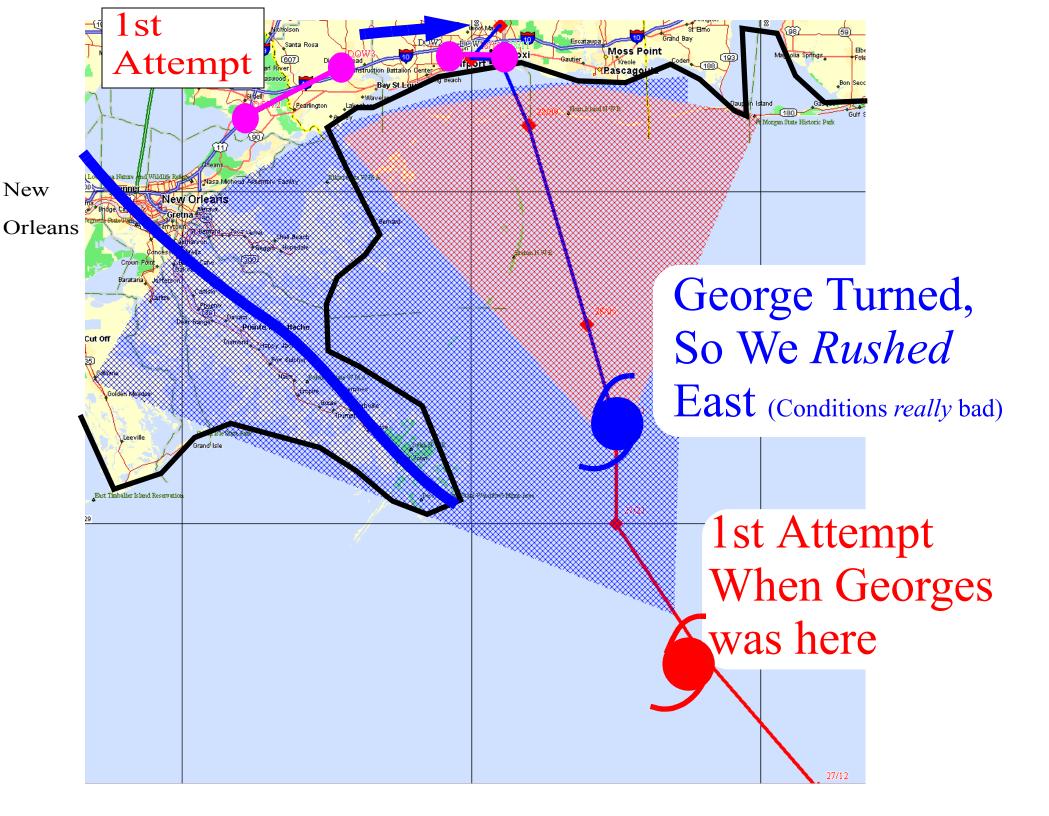
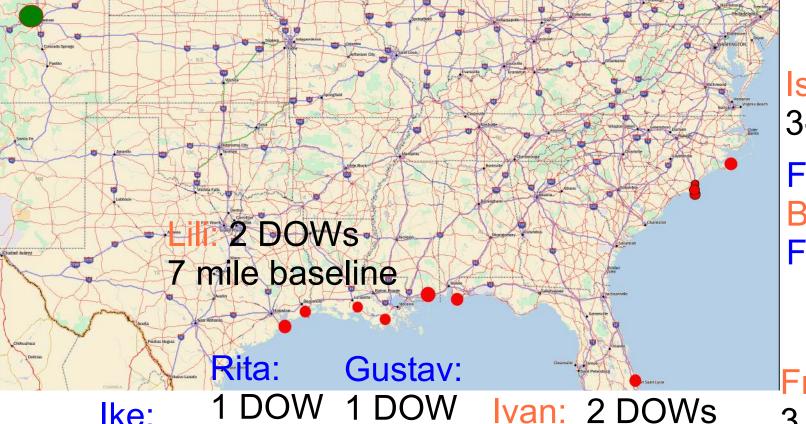


We have to pick our spot before red circle comes onshore



11 out of 11 DOW deployments inside eyes



Isabel: 3 DOWs 3-7 mile baselines

Fran: 1 DOW

Bonnie: 2 DOWs

Floyd: 1 DOW

Frances: 2 DOWs 3 mile baseline

1 DOW 1 DOW Ivan: 2 DOWs
1 DOW 6 mile baseline

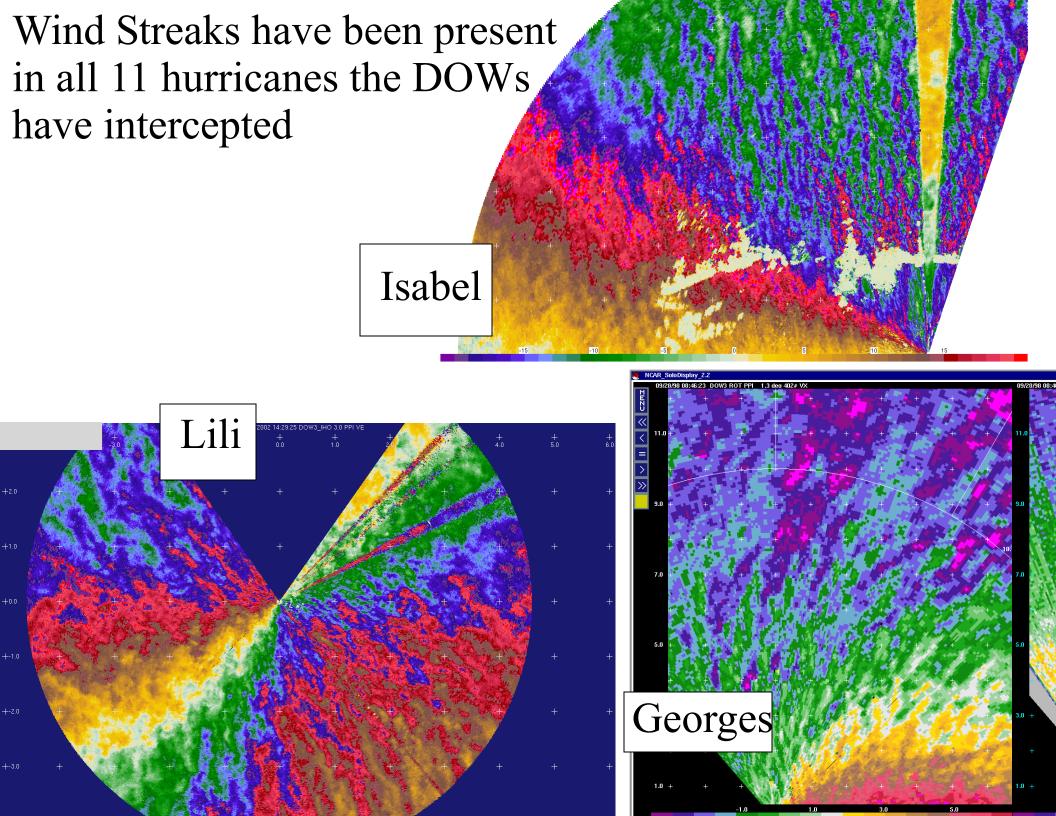
Georges: 2 DOWs

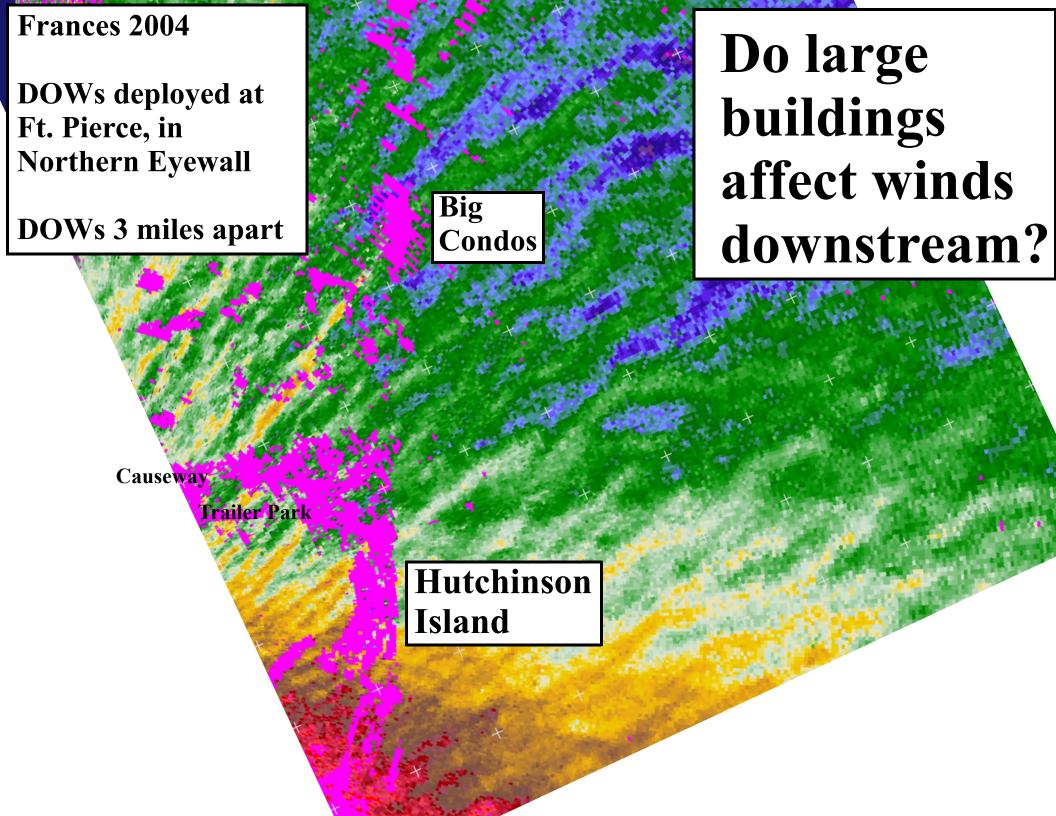
6 mile baseline

DOWs deploy in right front, on-shore, side of eyes

DOWs deploy at coast or 1-5 km inland (except in Houma)

DOWs only deploy for forecast Cat 2+





Two limited technologies

Radars see 'everywhere', but at >100 meters AGL

Towers see at 10 m AGL, but only at isolated points



tell us full picture

Pods: 1 m, 2 m

Cars: 4 m

FCMP/TTU Towers: 10 m

Radar Towers: 10-17 m

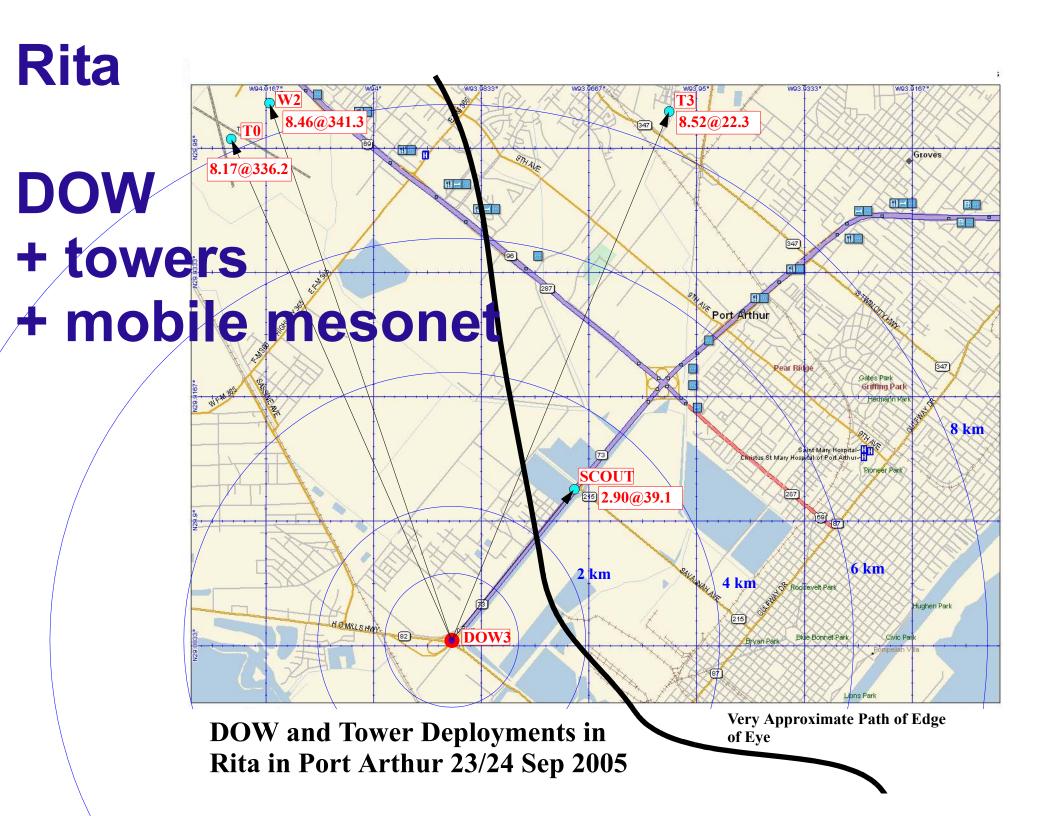
Radars: 30-200 m

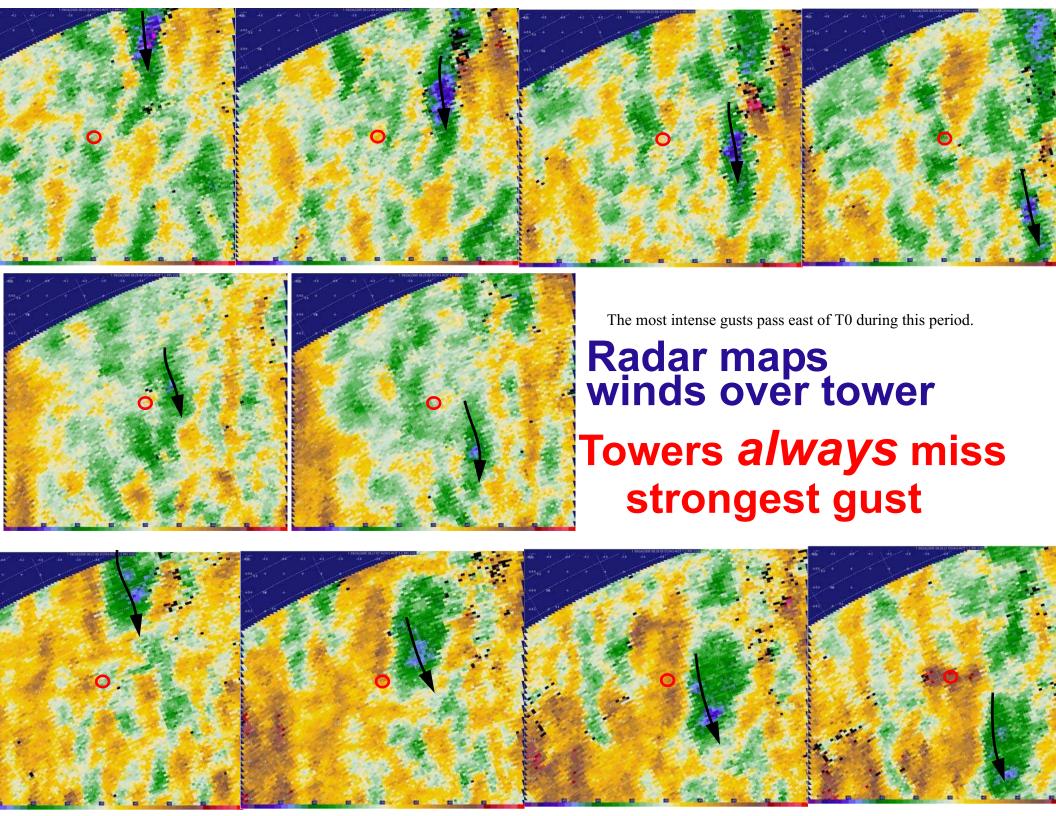


4 m



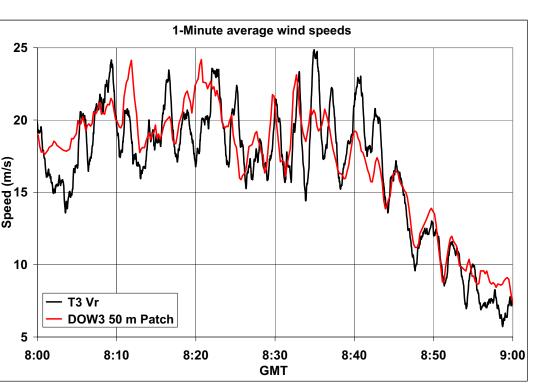


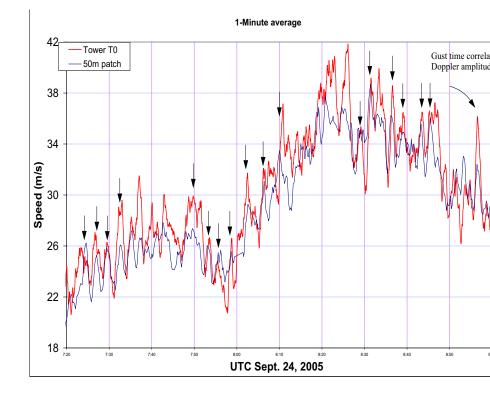




DOW + FCMP Tower comparisons show that DOW gusts agree with FCMP gusts.

DOW/Surface windmaps are possible





Similar DOW Doppler and FCMP T3 comparison. 0.43 normalization for apparently more sheltered location applied as well as cosine correction. 1-min gusts seem to be well correlated.

If 0.7/0.43 correction is applied to normalize the T3 data to the T0 exposure (using the DOW exposure-independent patch measurements at 100 m agl), then the corrected peak windspeeds at T3 are slightly higher than those at T0, which is what one would expect meteorologically since T3 was closer to the passage of the center of the eye of Rita.

Comparison of Doppler and FMCP T0 winds over shorter time period to illustrate qualitative alignment of 1-min period gusts.

Amplitude of 1-min variability is higher at T0, probably due to inadequate spatial averaging method for Doppler patch. (soon to be con Same 0.7 normalization and cosign corrections applied.

2009

No formal field program

DOW and whatever we could bring

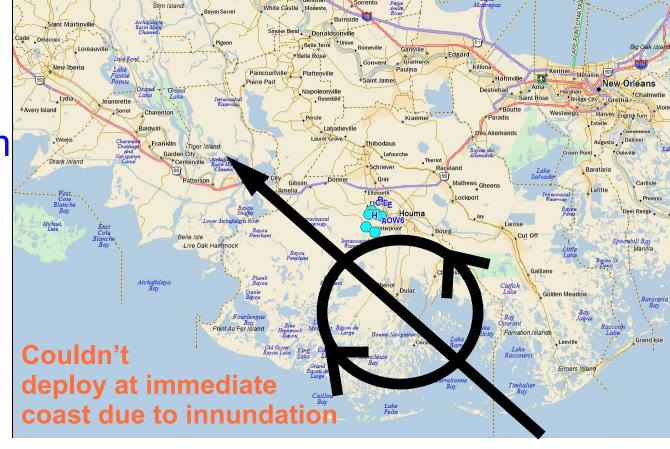
Gustav

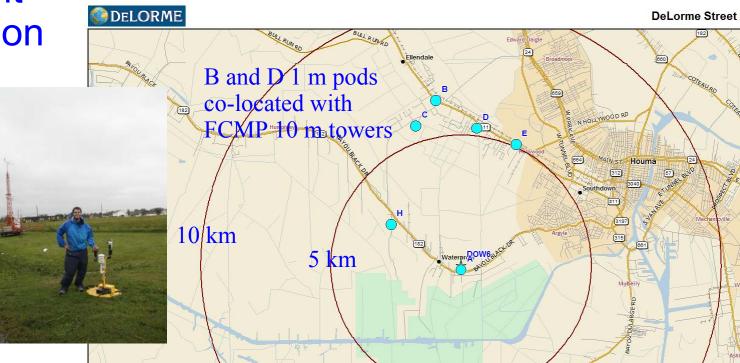
1 m pods about 5 km from DOW.

2 pods co-located with 10 m FCMP towers

Intense right-front eyewall convection

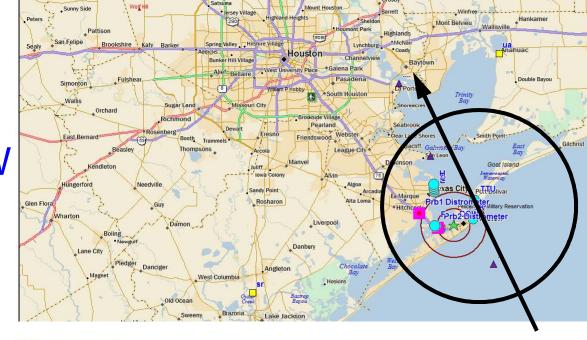
Open fields, but semi-forested terrain





Ike

- 2 arrays of 1-2 m pods
- 7 km and 13 km from DOW
- 1 pod on raised causeway
- 2 CU disdrometers co-located with mobile mesonets (3m agl)
- Center of eye passed over Galveston pod array 5-10 km east of DOW



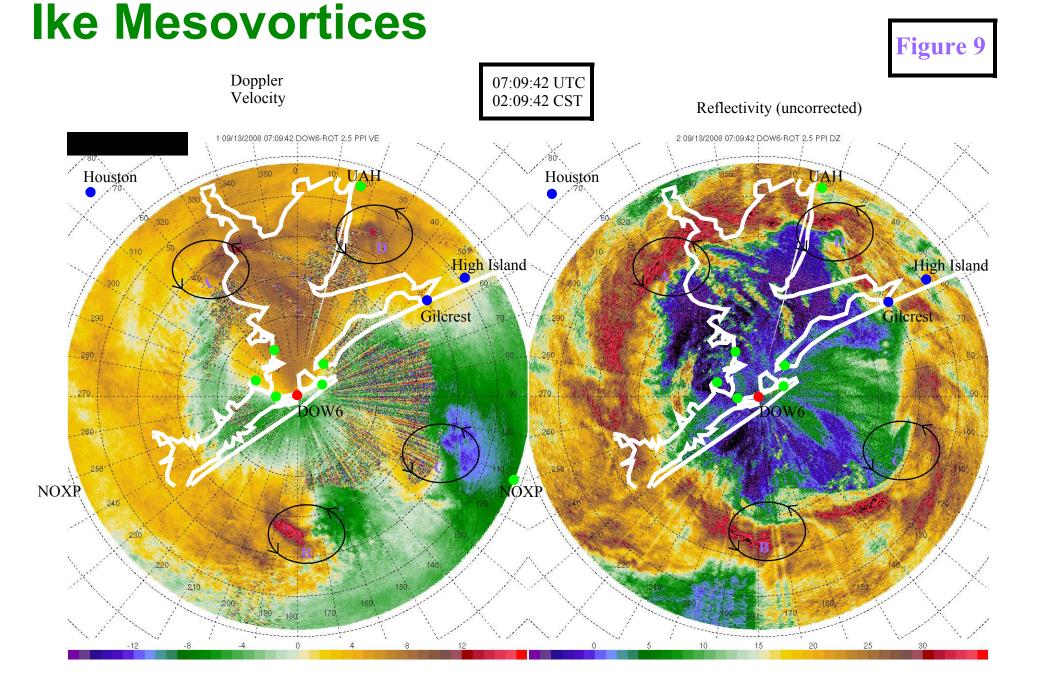


Several recent DOW deployments on bridges These are particularly useful in urban areas

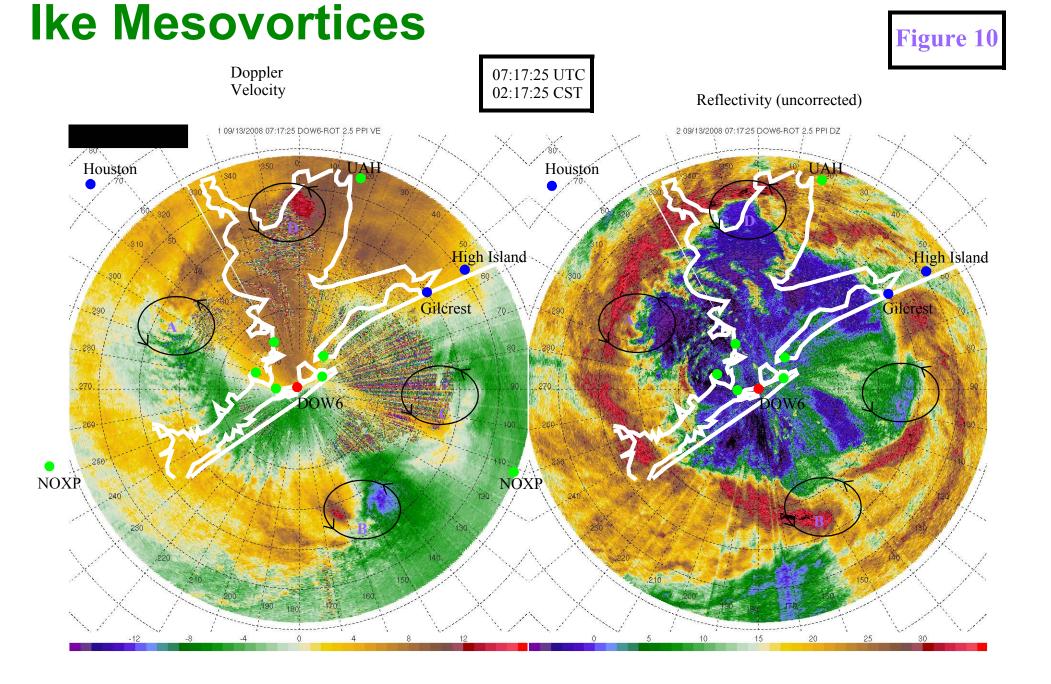


Ike Mesovortices Figure 7 Doppler 06:57:24 UTC Velocity 01:57:24 CST Reflectivity (uncorrected) Houston Houston High Island High Island Gilcrest DOW6 NOXP

Galveston in Eye. Mesovortices revolve in eye.



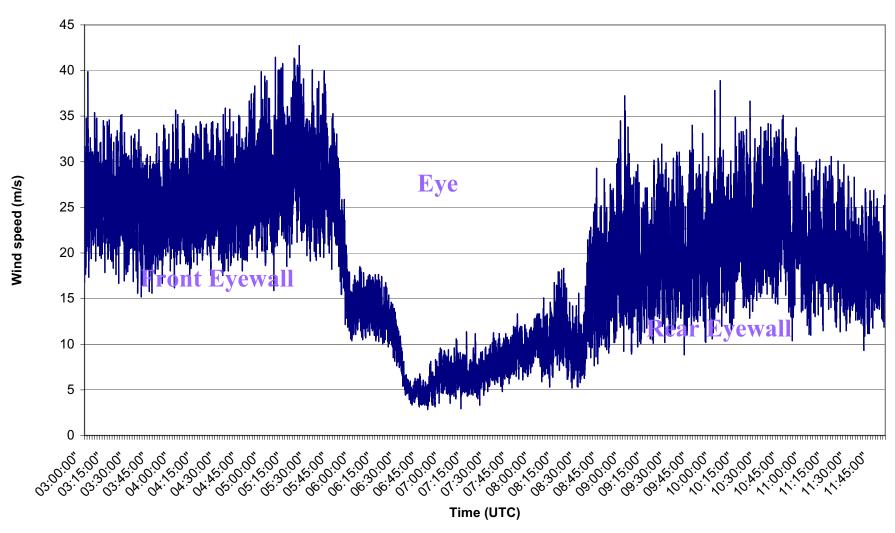
Galveston and Bolivar in center of Eye. Mesovortices cross Baytown



Front Eyewall appraches Houston. Mesovortices approach Houston.

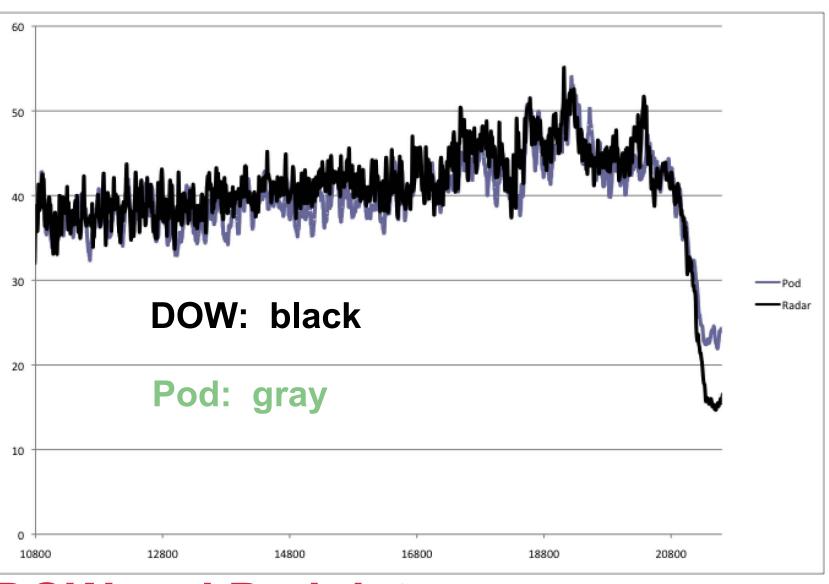
Ike Galveston Sea Wall 1 and 2 m wind Zo =0.003 from timeseries

Galvaston Island Sea Wall N29.323197, W94.759444 Pod B: Blade Anemometer



Wind Trace at East Galveston Sea Wall

1-m Pod data (Z=0.003) adjusted to DOW observation height (100-200 m)



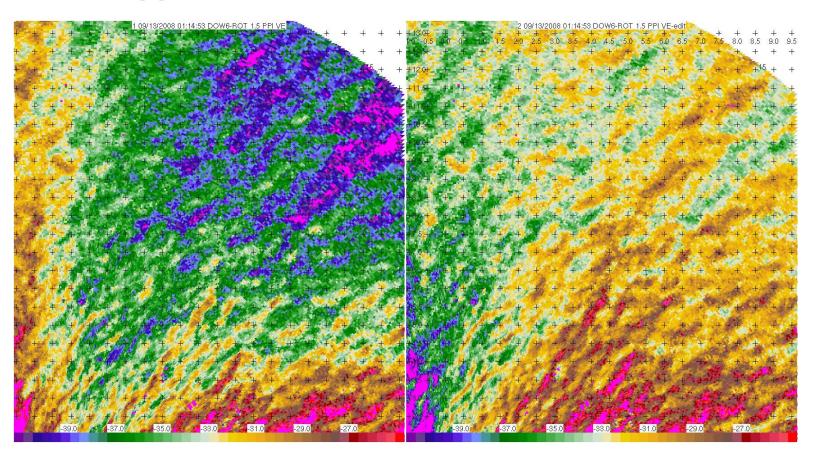
DOW and Pod data agree

DOW data and Pod data consistent DOW data are representative of surface wind gusts

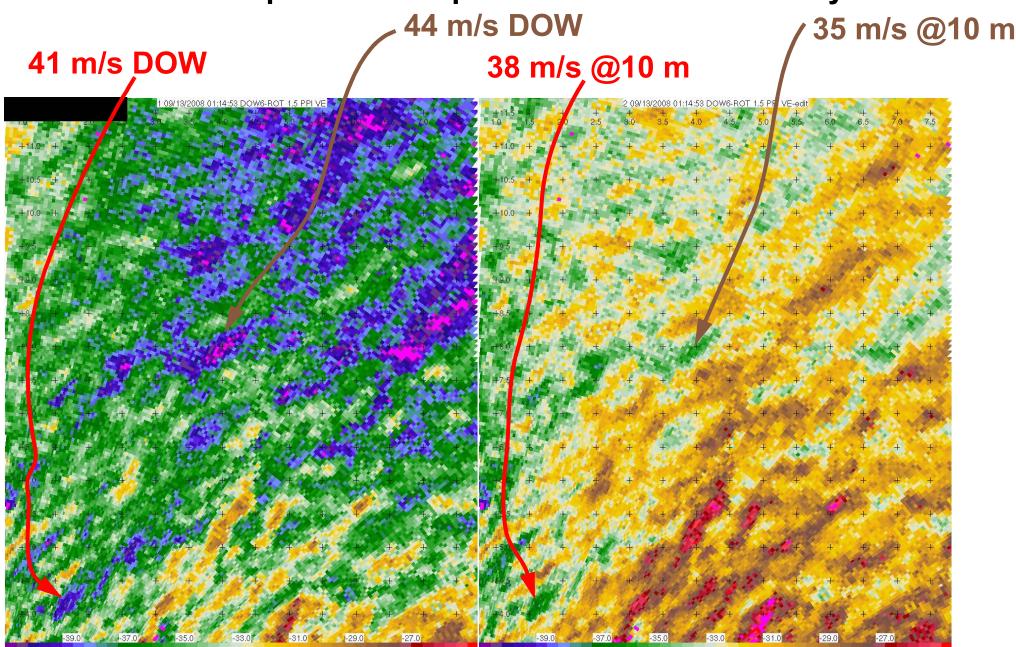
DOW data can be adjusted to 10-m and various exposures to make large scale, gap-free 2D surface wind maps.

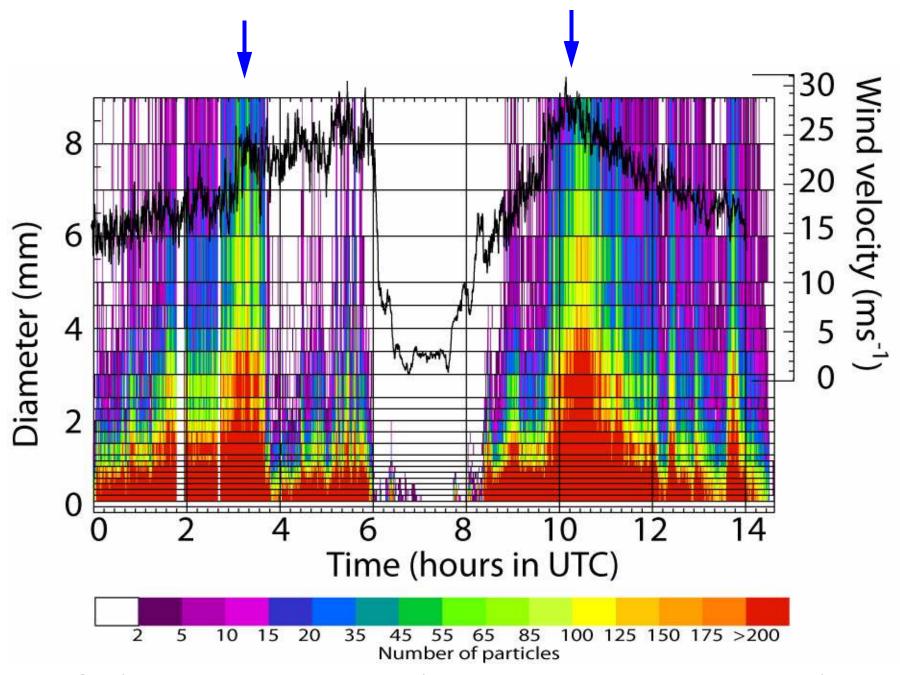
Raw Doppler

Adjusted to 10 m Z = 0.003



Individual 10 m open water exposure winds estimated by DOW





Quickly Deployable Disdrometers measured raindrop sizes

Large, 8mm drops in rainbands (blue arrows)

